

***Remarks/Arguments***

Initially, Applicant would like to express their appreciation to the Examiner for the detailed Official Action provided, for the acknowledgment of Applicant's Information Disclosure Statement by return of the Form PTO-1449, and for the acknowledgment of Applicant's Claim for Priority and receipt of the certified copy of the priority document.

Further, Applicant would like to that the Examiner for the indicating that claim 7 contains allowable subject matter.

Upon entry of the above amendments, claims 1-10 will have been amended. In this regard, claims 2-10 have been amended solely in order to more clearly recite the presently claimed invention and, in some instances, to remove recitations of "means" so as to make clear that Applicant does not intend to invoke 35 U.S.C. 112, sixth paragraph. Claims 1-10 are currently pending. Applicant respectfully requests reconsideration of the outstanding objections and rejections, and allowance of all the claims pending in the present application.

***Objection to the Drawings***

In the Official Action, the Examiner objected to the Drawings. In this regard, the Examiner asserts that the feature of the resonators being mounted in positions asymmetrical with respect to each other (i.e., in both the radial and axial directions) must be shown or canceled from the claims.

In this regard, Applicant submits that Figure 1 of the Drawings has been amended, where appropriate, in order to address the Examiner's concerns. Accordingly, the objection to the drawings are believed to be moot and should be withdrawn.

***Objection to the Specification***

In the Official Action, the Examiner objected to the Specification for generally the same reasons claim 8 was rejected under 35 U.S.C. § 112. In this regard, Applicant has amended the Specification, where appropriate (and consistent with the following discussion of the rejection under 35 U.S.C. § 112), in order to address the Examiner's concerns. Accordingly, the objection to the Specification is believed to be improper and should be withdrawn.

***Rejection under 35 U.S.C. § 112***

In the Official Action, the Examiner rejected claim 8 under 35 U.S.C. § 112, as being indefinite. In setting forth the rejection, the Examiner asserts that it is unclear how the resonators have an axis of symmetry parallel to each other (see, page 3, paragraph 4 of the Official Action).

Without acquiescing to the propriety of the Examiner's rejection, Applicants have amended claim 8, where appropriate, in order to address the Examiner's concerns. More specifically, claim 8 has been amended generally to recite that the axes of symmetry of the casing and neck are aligned. Accordingly, the rejection under 35 U.S.C. § 112 is believed to be improper and should be withdrawn.

***Listing of the rejections***

In the Official Action, the Examiner rejected claim 1 under 35 U.S.C. § 102(b) as being anticipated by GUTMARK (U.S. Patent No. 6,464,489);

the Examiner rejected claims 1, 2 and 8-10 under 35 U.S.C. § 103(a) as being unpatentable over AIGNER (U.S. Patent No. 5,373,695) in view of GUTMARK;

the Examiner rejected claims 3-5 under 35 U.S.C. § 103(a) as being unpatentable over AIGNER in view of GUTMARK, and further in view of SATTINGER (U.S. Patent No. 6,530,221); and

the Examiner rejected claim 6 under 35 U.S.C. § 103(a) as being unpatentable over AIGNER in view of GUTMARK, and further in view of STALDER (U.S. Patent No. 6,370,879).

Without acquiescing to the propriety of the Examiner's rejections, Applicant submits that claim 1 has been amended solely in order to expedite prosecution of the present invention.

In this regard, Applicant submits that none of the applied prior art, alone or in any properly reasoned combination, discloses at least the combination of features generally recited in independent claim 1.

In particular, claim 1 generally set forth a system for damping thermo-acoustic instability in a combustor including, inter alia, at least one Helmholtz resonator, the Helmholtz resonator comprising a casing defining a pre-set volume therein and a neck for hydraulic connection between the pre-set volume and the combustion chamber; the neck being connected to one side of the combustion chamber distant from the front upstream portion of the combustion chamber provided with the at least one burner.

***Discussion of the rejection under 35 U.S.C. § 102***

In setting forth the rejection of claim 1 as being anticipated by GUTMARK, the Examiner asserts that GUTMARK discloses, inter alia, a resonator 10 having a casing and neck (i.e., the structure connecting 10 and 16)[see, page 4, paragraph 6 of the Official Action].

Contrary to the Examiner's assertions, Applicant submits that GUTMARK does not disclose an Helmholtz resonator(s).

Applicant submits that GUTMARK in fact discloses active acoustic drivers that are actuated by a feedback loop (see, e.g., Figures 3, 4, and 6, reference numerals 10 and 22, and column 5, lines 3-10 of GUTMARK). Further, Applicant submits that GUTMARK describes the acoustic drivers as being loudspeakers, vibrating walls, or combinations thereof (see column 5, lines 45-50).

In this regard, Applicant submits that, although the acoustic drivers of GUTMARK may have a cavity and a neck coupling the cavity to the combustion chamber, there is nothing in the disclosure of GUTMARK which teaches that the acoustic drivers are structured or configured to operate as Helmholtz resonators.

Thus, Applicant submits that GUTMARK does not disclose at least the presently claimed Helmholtz resonator, as would be required to support the rejection of claim 1 under 35 U.S.C. § 102.

***Discussion of the rejections under 35 U.S.C. § 103***

In setting forth the rejections which rely on both AIGNER and GUTMARK, the Examiner asserts that AIGNER discloses the general structure of the presently claimed system except for the positioning of the resonator. Nevertheless, the Examiner asserts that GUTMARK discloses the presently claimed positioning of the resonator, as discussed supra (see, page 5, paragraph 8 of the Official Action).

Contrary to the Examiner's assertions, Applicant submits that the Examiner has not provided any proper reasoning supporting the conclusion that it would have been obvious to modify the device of AIGNER to reposition the resonator of AIGNER in accordance with the positioning of the acoustic drivers of GUTMARK which the Examiner considers to be equivalent to the presently claimed GUTMARK.

More specifically, Applicant submits that GUTMARK discloses that acoustic drivers, not a Helmholtz resonator, should be placed at a distance from the burners. As discussed supra, acoustic drivers are structurally and functionally different from Helmholtz resonators (e.g., see column 8, lines 19-25 where GUTMARK features of the active acoustic driver).

In particular, Applicant submits that GUTMARK discloses placing the acoustic drivers away from the burners because antagonistic flow phenomena could suppress the effect of acoustic vibrations introduced by the acoustic driver. That is, the positioning of the acoustic drivers in GUTMARK are inherently related to their active nature which results in the supply of acoustic energy.

To the contrary, Applicant submits that the present invention utilizes a Helmholtz resonator (which is passive) which operates on substantially different principals than the acoustic drivers of GUTMARK.

Accordingly, Applicant submits that there is no proper reasoning for one of ordinary skill in the art to combine the teaches of AIGNER and GUTMARK, and the proposed combination would not have yielded predictable results to one of ordinary skill in the art.

Additionally, SATTINGER and STALDER do not disclose any teachings which can reasonably be consider to supply the aforementioned deficiencies of AIGNER and GUTMARK.

Thus, Applicant submits that the applied prior art, alone or in any properly reasoned combination, fails to disclose at least the presently claimed at least one Helmholtz resonator, the Helmholtz resonator comprising a casing defining a pre-set volume therein and a neck for hydraulic connection between the pre-set volume and the combustion chamber; the neck being connected to one side of the combustion chamber distant from the front upstream portion of the combustion chamber provided with the at least one burner, as generally recited in claim 1.

### ***Conclusion***

Accordingly, Applicant submits that the rejections of claims 1-6 and 8-10 under 35 U.S.C. § 102 and 103 are improper and should be withdrawn.

In view of the arguments herein, Applicant submits that independent claim 1 is in condition for allowance. With regard to dependent claims 2-10, Applicant asserts that

these claims are allowable on their own merit, as well as because they depend from independent claim 1 which Applicant has shown to be allowable.

Thus, it is respectfully submitted that all of the claims in the present application are clearly patentable over the references cited by the Examiner, either alone or in combination, and an indication to such effect is respectfully requested, in due course.

SUMMARY

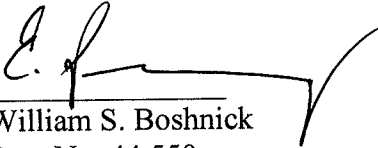
Applicant submits that the present application is in condition for allowance, and respectfully requests an indication to that effect. Applicant has argued the allowability of the claims and pointed out deficiencies of the applied references. Accordingly, reconsideration of the outstanding Official Action and allowance of the present application and all the claims therein are respectfully requested and is now believed to be appropriate.

Applicant submits that this amendment is being made to advance prosecution of the application to allowance and should not be considered as surrendering equivalents of the territory between the claims prior to the present amendment and the amended claims. Further, no acquiescence as to the propriety of the Examiner's rejection is made by the present amendment. All other amendments to the claims which have been made in this amendment, and which have not been specifically noted to overcome a rejection based upon the prior art, should be considered to have been made for a purpose unrelated to patentability, and no estoppel should be deemed to attach thereto.



Should there be any questions or comments, the Examiner is requested to contact the undersigned at the below-listed telephone number.

Respectfully Submitted,  
Giacomo POLLAROLO et al.

  
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Attachment: 1 sheet of Drawings